



**ICF international / Laboratory Data Consultants**

Environmental Services Assistance Team, Region 9  
1337 South 46<sup>th</sup> Street, Building 201, Richmond, CA 94804-4698  
Phone: (510) 412-2300 Fax: (510) 412-2304

**MEMORANDUM**

TO: Lynda Deschambault, Remedial Project Manager  
Site Cleanup Section 1, SFD-7-1

THROUGH: Rose Fong, ESAT Task Order Manager (TOM) *RF*  
Quality Assurance (QA) Program, MTS-3

FROM: Doug Lindelof, Data Review Task Manager *DL*  
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041  
Technical Direction Form No.: 00405058

DATE: June 2, 2009

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Omega Chem OU2
Site Account No.:	09 BC QB02
CERCLIS ID NO.:	CAD042245001
Case No.:	38275
SDG No.:	Y4Q41
Laboratory:	CompuChem (LIBRTY)
Analysis:	Trace Volatiles
Samples:	20 Ground Water Samples (see Case Summary)
Collection Date:	April 7, 2009
Reviewer:	April Martinez, ESAT/Laboratory Data Consultants

This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Cynthia Gurley, CLP PO USEPA Region 4  
Steve Remaley, CLP PO USEPA Region 9

CLP PO:  Attention     Action

SAMPLING ISSUES:  Yes     No

00405058-10840/38275/Y4Q41-TV

## Data Validation Report - Tier 3

Case No.: 38275  
SDG No.: Y4Q41  
Site: Omega Chem OU2  
Laboratory: CompuChem (LIBRTY)  
Reviewer: April Martinez, ESAT/LDC  
Date: June 2, 2009

### I. CASE SUMMARY

#### Sample Information

Samples: Y4Q41 through Y4Q60  
Concentration and Matrix: Low Concentration Water  
Analysis: Trace Volatiles  
SOW: SOM01.2  
Collection Date: April 7, 2009  
Sample Receipt Date: April 8, 2009  
Extraction Date: Not Applicable  
Analysis Date: April 16 and 17, 2009

#### Field QC

Field Blanks (FB): Y4Q62 and Y4Q68 (in SDG Y4Q61)  
Equipment Blanks (EB): Not provided  
Trip Blank (TB): Not provided  
Background Samples (BG): Not provided  
Field Duplicates (D1): Y4Q52 and Y4Q53  
Field Duplicates (D2): Y4Q55 and Y4Q56

#### Laboratory QC

##### Method Blanks & Associated Samples:

VBLKDP: Y4Q41 through Y4Q45  
VBLKJL: Y4Q46 through Y4Q57  
VBLKBG: Y4Q59DL and Y4Q60DL  
VBLKDU: Y4Q41DL, Y4Q46DL through Y4Q57DL, Y4Q58,  
Y4Q59, Y4Q60  
VBLKDW: Y4Q59MS, Y4Q59MSD  
VBLKEA: storage blank VHBLKYA

#### Tables

- 1A: Analytical Results with Qualifications
- 1B: Data Qualifier Definitions for Organic Data Review
- 2: Calibration Summary

#### CLP PO Action

None.

#### CLP PO Attention

1. Detected results for (1) acetone in samples Y4Q41 through Y4Q49 and Y4Q53 through Y4Q59 and (2) 2-butanone in sample Y4Q51 are qualified as nondetected

- and estimated (U,J) due to method blank, storage blank, and field blank contamination (see Comment B).
2. Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments C and D).
  3. Results for some analytes are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment E).

#### Sampling Issues

The detected result for 2-butanone in sample Y4Q51 is qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).

#### Additional Comments

Other than laboratory artifacts (approximate retention times of 11.4 and 13.5 minutes), tentatively identified compounds (TICs) were found in samples Y4Q41, Y4Q42, Y4Q46 through Y4Q52, Y4Q57, Y4Q59, and Y4Q60 (see attached Form 1Js).

The laboratory performed manual integrations on calibrations due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

Standard preparation logs are not included in the data package and cannot be evaluated. This information was requested from the laboratory but has not been received to date. Data are not qualified in this report due to missing standard preparation logs.

This report was prepared in accordance with the following documents:

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages*;
- USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2*, Amended April 11, 2007; and
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.

## II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Holding Time/Preservation	Yes	
2. GC/MS Tune/GC Performance	Yes	
3. Initial Calibration	No	C
4. Continuing Calibration Verification	No	C, D
5. Laboratory Blanks	No	B
6. Field Blanks	No	B
7. Deuterated Monitoring Compounds	No	E
8. Matrix Spike/Matrix Spike Duplicate	No	G
9. Laboratory Control Sample/Duplicate	N/A	
10. Internal Standards	Yes	
11. Compound Identification	Yes	
12. Compound Quantitation	Yes	A, H, I
13. System Performance	Yes	
14. Field Duplicate Sample Analysis	No	F

N/A = Not Applicable

## III. VALIDITY AND COMMENTS

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All detected results below the contract required quantitation limits

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

- B. The following results are qualified as nondetected and estimated due to method blank, storage blank, and field blank contamination and are flagged "U,J" in Table 1A.

- Acetone in samples Y4Q41 through Y4Q49 and Y4Q55 through Y4Q59
- 2-Butanone in sample Y4Q51

Acetone was found in method blanks VBLKDP, VBLKJL, and VBLKDU and storage blank VHBLKYA; 2-butanone was found in field blank Y4Q62 (see Table 1A for concentrations). Results for the samples listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is

greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

*A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

- C. Results for the following analyte are qualified as estimated due to low RRFs in initial calibrations and continuing calibration verifications (CCVs) and are flagged "J" in Table 1A.

- Acetone in all samples, all method blanks, and storage blank VHBLKYA

RRFs were below the 0.05 validation criterion for acetone in initial calibrations and CCVs (see Table 2). Detected results for acetone should be considered as the minimum concentrations at which acetone is present in the samples. Where results are nondetected, false negatives may exist.

DMCs 2-butanone-d5 and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the initial calibrations and CCVs (see Table 2). Quantitation of the analytes associated with these DMCs may have been affected by low RRFs (see attached Table 9 from the Functional Guidelines).

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

- D. Results for the following analytes are qualified as estimated due to large percent differences (%Ds) in CCVs and are flagged "J" in Table 1A.

- Bromomethane in samples Y4Q46 through Y4Q57 and method blank VBLKJL
- 1,2-Dibromo-3-chloropropane in method blank VBLKBG

%Ds of -37.3 % for bromomethane and -40.8 % for 1,2-dibromo-3-chloropropane were reported in 04/16/09 14:25 and 04/17/09 14:52 CCVs, respectively. These values exceeded the  $\pm 30.0\%$  (bromomethane) and  $\pm 40.0\%$  (1,2-dibromo-3-chloropropane) validation criterion for opening CCVs.

DMC 1,1-Dichloroethene-d2 also had a %D that exceeded the  $\pm 30.0\%$  validation criterion in the 04/16/09 14:25 CCV. Quantitation of the analytes associated with this DMC may have been affected by the high %D (see attached Table 9 from the Functional Guidelines).

*The continuing calibration verification checks satisfactory performance of the instrument on a day-to-day basis.*

- E. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged "J" in Table 1A.

{1,1-Dichloroethene-d2}

- cis-1,2-Dichloroethene in sample Y4Q44
- trans-1,2-Dichloroethene and cis-1,2-dichloroethene in samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, and Y4Q59
- 1,1-Dichloroethene and cis-1,2-dichloroethene in sample Y4Q53
- 1,1-Dichloroethene, trans-1,2-dichloroethene and cis-1,2-dichloroethene in samples Y4Q46 through Y4Q49, Y4Q52, Y4Q54, Y4Q57, and Y4Q60

{Chloroform-d}

- 1,1-Dichloroethane in sample Y4Q59
- 1,1-Dichloroethane and chloroform in sample Y4Q60

DMC recoveries outside QC limits are shown below.

<u>Sample</u>	<u>DMC</u>	<u>% Recovery</u>	<u>QC Limit</u>
Y4Q53DL	Chloroethane-d5	54	71-131
Y4Q54DL	Chloroethane-d5	66	71-131
Y4Q42	1,1-Dichloroethene-d2	107	55-104
Y4Q44	1,1-Dichloroethene-d2	109	55-104
Y4Q46	1,1-Dichloroethene-d2	848	55-104
Y4Q46DL	1,1-Dichloroethene-d2	118	55-104
Y4Q47	1,1-Dichloroethene-d2	1090	55-104
Y4Q47DL	1,1-Dichloroethene-d2	132	55-104
Y4Q48	1,1-Dichloroethene-d2	785	55-104
Y4Q48DL	1,1-Dichloroethene-d2	126	55-104
Y4Q49	1,1-Dichloroethene-d2	782	55-104
Y4Q49DL	1,1-Dichloroethene-d2	125	55-104
Y4Q50	1,1-Dichloroethene-d2	353	55-104
Y4Q51	1,1-Dichloroethene-d2	352	55-104

<u>Sample</u>	<u>DMC</u>	<u>% Recovery</u>	<u>QC Limit</u>
Y4Q52	1,1-Dichloroethene-d2	603	55-104
Y4Q52DL	1,1-Dichloroethene-d2	119	55-104
Y4Q53	1,1-Dichloroethene-d2	507	55-104
Y4Q53DL	1,1-Dichloroethene-d2	120	55-104
Y4Q54	1,1-Dichloroethene-d2	471	55-104
Y4Q54DL	1,1-Dichloroethene-d2	120	55-104
Y4Q55	1,1-Dichloroethene-d2	273	55-104
Y4Q56	1,1-Dichloroethene-d2	225	55-104
Y4Q57	1,1-Dichloroethene-d2	468	55-104
Y4Q57DL	1,1-Dichloroethene-d2	118	55-104
Y4Q59	1,1-Dichloroethene-d2	704	55-104
Y4Q59MS	1,1-Dichloroethene-d2	636	55-104
Y4Q59MSD	1,1-Dichloroethene-d2	624	55-104
Y4Q60	1,1-Dichloroethene-d2	386	55-104
Y4Q60DL	1,1-Dichloroethene-d2	133	55-104
Y4Q59	Chloroform-d	149	78-121
Y4Q59MS	Chloroform-d	157	78-121
Y4Q59MSD	Chloroform-d	156	78-121
Y4Q60	Chloroform-d	126	78-121
Y4Q57DL	2-Hexanone-d5	138	28-135

Qualified results may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. The samples were not reanalyzed undiluted.

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

F. In the analysis of the field duplicate pair, the following outliers were reported.

<u>Analyte</u>	<u>Y4Q55 (D2)</u>	<u>Y4Q56 (D2)</u>	
	<u>Conc., ug/L</u>	<u>Conc., ug/L</u>	<u>RPD (&lt;25%)</u>
Trichlorofluoromethane	63	25	86
1,1-Dichloroethene	69	34	68
1,1,2-Trichloro-1,2,2-Trifluoroethane	170	79	73
Cyclohexane	1.7	0.40 J	N/A
Trichloroethene	250	140	56
Tetrachloroethene	110	63	54

The effect on data quality is not known.

*The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix or poor sampling or laboratory technique.*

- G. The matrix spike and matrix spike duplicate (MS/MSD) recoveries for 1,1-dichloroethene and trichloroethene and relative percent difference (RPD) for 1,1-dichloroethene in QC samples Y4Q59MS and Y4Q59MSD did not meet the criteria for accuracy and precision specified in the SOW, as shown below.

Analyte	Y4Q59MS	Y4Q59MSD	QC limits		
	<u>% Recovery</u>	<u>% Recovery</u>	<u>RPD</u>	<u>RPD</u>	<u>% Recovery</u>
1,1-Dichloroethene	-23	30	1488	14	61-145
Trichloroethene	-1257	-1243	-----	---	71-120

The recoveries and RPD are not meaningful because concentrations of 1,1-dichloroethene (140 ug/L) and trichloroethene (220 ug/L) in sample Y4Q59 are significantly higher than the spike concentration of 5.0 ug/L.

*Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.*

- H. Sample Y4Q41 was reanalyzed at a 1.7-fold dilution due to a high level of 1,2-dichloroethane that exceeded the calibration range. The result for 1,2-dichloroethane in sample Y4Q41 is reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Samples Y4Q46, Y4Q47, Y4Q48, and Y4Q49 were reanalyzed at a 25-, 25-, 16.7-, and 16.7-fold dilutions, respectively, due to high levels of 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q46, Y4Q47, Y4Q48, and Y4Q49 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, Y4Q57, and Y4Q60 were reanalyzed at 16.7-, 16.7-, 25-, 25-, 16.7-, and 8.3-fold dilutions, respectively, due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, Y4Q57, and Y4Q60 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4Q52 and Y4Q54 were reanalyzed at 12.5-fold dilutions due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q52 and Y4Q54 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Sample Y4Q53 was reanalyzed at a 12.5-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, acetone, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4Q53 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4Q59 was reanalyzed at a 41.7-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, chloroform, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4Q59 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

- I. Data users should note that the undiluted concentrations for trichloroethene and tetrachloroethene in the following samples are significantly higher than the diluted concentrations.

<u>Sample</u>	<u>Analyte</u>	<u>Undiluted</u> Conc., $\mu\text{g}/\text{L}$	<u>Diluted</u> Conc., $\mu\text{g}/\text{L}$
Y4Q51	Tetrachloroethene	130	97
Y4Q56	Trichloroethene	200	140
Y4Q56	Tetrachloroethene	110	63
Y4Q60	Trichloroethene	120	80

## ANALYTICAL RESULTS

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Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

## QUALIFIED DATA

Concentration in ug/L

Analysis Type :

Trace Level Water Samples  
for Trace Volatiles

Station Location :	2	3	4	5	6	7
Sample ID :	Y4Q41	Y4Q42	Y4Q43	Y4Q44	Y4Q45	Y4Q46
Collection Date :	4/7/2009	4/7/2009	4/7/2009	4/7/2009	4/7/2009	4/7/2009
Dilution Factor :	1.0	1.0	1.0	1.0	1.0	1.0
Trace Volatiles	Result	Val	Com	Result	Val	Com
Dichlorodifluoromethane	0.50U			0.50U		
Chloromethane	0.50U			0.50U		
Vinyl chloride	0.50U			0.50U		
Bromomethane	0.50U			0.50U		
Chloroethane	0.50U			0.50U		
Trichlorofluoromethane	0.50U			0.50U		
1,1-Dichloroethene	0.50U			0.50U		
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50U			0.50U		
Acetone	6.0U	J	BC	5.0U	J	BC
Carbon Disulfide	0.50U			0.50U		
Methyl acetate	0.50U			0.50U		
Methylene chloride	0.50U			0.50U		
trans-1,2-Dichloroethene	0.26L	J	A	0.50U		
Methyl tert-butyl ether	0.50U			0.50U		
1,1-Dichloroethane	0.50U			0.50U		
cis-1,2-Dichloroethene	4.9			0.50U		
2-Butanone	5.0U			5.0U		
Bromo-chloromethane	0.50U			0.11L	J	A
Chloroform	0.50U			0.50U		
1,1,1-Trichloroethane	0.50U			0.50U		
Cyclohexane	0.82			0.53		
Carbon tetrachloride	0.50U			0.50U		
Benzene	0.50U			0.50U		
1,2-Dichloroethane	23	H		3.9		
Trichloroethene	1.8			2.1		
Methylcyclohexane	0.50U			0.50U		

## ANALYTICAL RESULTS

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Case No. : 38275

SDG No. : Y4Q41

Table 1A

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

## QUALIFIED DATA

Concentration in ug/L

Analysis Type :

Trace Level Water Samples  
for Trace Volatiles

Station Location :	2	3	4	5	6	7
Sample ID :	Y4Q41	Y4Q42	Y4Q43	Y4Q44	Y4Q45	Y4Q46
Collection Date :	4/7/2009	4/7/2009	4/7/2009	4/7/2009	4/7/2009	4/7/2009
Dilution Factor :	1.0	1.0	1.0	1.0	1.0	1.0
Trace Volatiles	Result	Val	Com	Result	Val	Com
1,2-Dichloropropane	0.50U			0.50U		
Bromodichloromethane	0.50U			0.50U		
cis-1,3-Dichloropropene	0.50U			0.50U		
4-Methyl-2-pentanone	5.0U			5.0U		
Toluene	0.50U			0.50U		
trans-1,3-Dichloropropene	0.50U			0.50U		
1,1,2-Trichloroethane	0.50U			0.50U		
Tetrachloroethene	0.50U			0.23L	J	A
2-Hexanone	5.0U			5.0U		
Dibromochloromethane	0.50U			0.14L	J	A
1,2-Dibromoethane	0.50U			0.50U		
Chlorobenzene	0.50U			0.50U		
Ethylbenzene	0.50U			0.50U		
o-Xylene	0.50U			0.50U		
m,p-Xylene	0.50U			0.50U		
Styrene	0.50U			0.50U		
Bromoform	0.50U			0.50U		
Isopropylbenzene	0.50U			0.50U		
1,1,2,2-Tetrachloroethane	0.50U			0.50U		
1,3-Dichlorobenzene	0.50U			0.50U		
1,4-Dichlorobenzene	0.50U			0.50U		
1,2-Dichlorobenzene	0.50U			0.50U		
1,2-Dibromo-3-chloropropane	0.50U			0.50U		
1,2,4-Trichlorobenzene	0.50U			0.50U		
1,2,3-Trichlorobenzene	0.50U			0.50U		

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit

N/A - Not Applicable

NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank,

TB - Trip Blank, BG - Background Sample

## ANALYTICAL RESULTS

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Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

QUALIFIED DATA  
Concentration in ug/L

Analysis Type :

Trace Level Water Samples  
for Trace Volatiles

Station Location :	8	Sample ID :	Y4Q47	Collection Date :	4/7/2009	Dilution Factor :	1.0	9	Y4Q48	10	Y4Q49	11	Y4Q50	12	Y4Q51	13	Y4Q52	
Trace Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Dichlorodifluoromethane	0.26L	J	A	0.50U			0.50U			0.19L	J	A	0.21L	J	A	0.23L	J	A
Chloromethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Vinyl chloride	0.32L	J	A	1.9			2.1			0.50U			0.50U			0.50U		
Bromomethane	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50U	J	D
Chloroethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Trichlorofluoromethane	0.50U			5.2			5.7			67		H	57		H	18		
1,1-Dichloroethene	240	J	EH	150	J	EH	150	J	EH	58	H	57	H	95	J	EH		
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50U			16			18			170	H	130	H	53	H			
Acetone	5.7U	J	BC	5.0U	J	BC	6.6U	J	BC	190	J	C	190	J	C	190	J	C
Carbon Disulfide	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Methyl acetate	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Methylene chloride	0.12L	J	A	0.19L	J	A	0.18L	J	A	0.50U			0.50U			0.50U		
trans-1,2-Dichloroethene	0.55	J	E	3.9	J	E	3.9	J	E	0.12L	J	AE	0.12L	J	AE	0.12L	J	AE
Methyl tert-butyl ether	0.50U			0.50U			0.50U			0.11L	J	A	0.10L	J	A	0.50U		
1,1-Dichloroethane	8.9			14			14			0.56			0.69			5.4		
cis-1,2-Dichloroethene	36	J	EH	47	J	EH	46	J	EH	7.3	J	E	7.2	J	E	14	J	E
2-Butanone	5.0U			5.0U			5.0U			5.0U			5.0U	J	B	5.0U		
Bromoform	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,1,1-Trichloroethane	0.50U			0.33L	J	A	0.33L	J	A	0.50U			0.50U			0.89		
Cyclohexane	1.5			6.4			6.8			0.73			0.31L	J	A	1.5		
Carbon tetrachloride	0.50U			0.50U			0.50U			0.39L			0.33L	J	A	0.14L	J	A
Benzene	0.34L	J	A	0.42L	J	A	0.41L	J	A	0.50U			0.13L	J	A	0.13L	J	A
1,2-Dichloroethane	2.5			3.4			3.4			0.37L	J	A	0.38L	J	A	0.82		
Trichloroethene	450	H		170	J	H	170	J	A	200	H		180	H		120	H	
Methylcyclohexane	0.50U			0.31L	J	A	0.26L	J	A	0.50U			0.50U			0.50U		

## ANALYTICAL RESULTS

Page 4 of 10

Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

**QUALIFIED DATA**  
**Concentration in ug/L**
**Analysis Type :****Trace Level Water Samples  
for Trace Volatiles**

Station Location :	8				9				10				11				12				13			
Sample ID :	Y4Q47				Y4Q48				Y4Q49				Y4Q50				Y4Q51				Y4Q52			
Collection Date :	4/7/2009				4/7/2009				4/7/2009				4/7/2009				4/7/2009				4/7/2009			
Dilution Factor :	1.0				1.0				1.0				1.0				1.0				1.0			
Trace Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
1,2-Dichloropropane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Bromodichloromethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
cis-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
4-Methyl-2-pentanone	5.0U			5.0U			5.0U			5.0U			5.0U			5.0U			5.0U			5.0U		
Toluene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
trans-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,1,2-Trichloroethane	0.50U			0.40L	J	A	0.38L	J	A	0.50U			0.50U			0.50U			0.50U			0.50U		
Tetrachloroethene	23	H		190	H		210	H		160	H		97	H		120	H		120	H		120	H	
2-Hexanone	5.0U			5.0U			5.0U			5.0U			5.0U			5.0U			5.0U			5.0U		
Dibromochloromethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dibromoethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Chlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Ethylbenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
o-Xylene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
m,p-Xylene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Styrene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Bromoform	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
Isopropylbenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,1,2,2-Tetrachloroethane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,3-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,4-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dibromo-3-chloropropane	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,2,4-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		
1,2,3-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U			0.50U		

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit

N/A - Not Applicable

NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank,

TB - Trip Blank, BG - Background Sample

Case No. : 38275

SDG No. : Y4Q41

## ANALYTICAL RESULTS

Table 1A

Site : OMEGA CHEM OU2

Lab : COMPCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

## QUALIFIED DATA

Concentration in ug/L

## Analysis Type :

Trace Level Water Samples  
for Trace Volatiles

Station Location :	14		15		16		17		18		19	
Sample ID :	Y4Q53	D1	Y4Q54		Y4Q55	D2	Y4Q56	D2	Y4Q57		Y4Q58	
Collection Date :	4/7/2009		4/7/2009		4/7/2009		4/7/2009		4/7/2009		4/7/2009	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0		1.0	
Trace Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Dichlorodifluoromethane	0.17L	J	A	0.21L	J	A	0.16L	J	A	0.14L	J	A
Chloromethane	0.50U			0.50U			0.50U			0.50U		
Vinyl chloride	0.50U			0.50U			0.50U			0.50U		
Bromomethane	0.50U	J	D	0.50U	J	D	0.50U	J	D	0.50U	J	D
Chloroethane	0.50U			0.50U			0.50U			0.50U		
Trichlorofluoromethane	14			18			63			25		
1,1-Dichloroethene	94	J	EH	98	J	EH	69	HF		76	H	0.12L
1,1,2-Trichloro-1,2,2-trifluoroethane	52	H		47	H		170	HF		34	HF	140
Acetone	160	J	CH	140	J	C	5.0U	J	BC	5.0U	J	BC
Carbon Disulfide	0.50U			0.50U			0.50U			0.50U		
Methyl acetate	0.50U			0.50U			0.50U			0.50U		
Methylene chloride	0.10L	J	A	0.16L	J	A	0.50U			0.50U		
trans-1,2-Dichloroethene	0.50U			0.11L	J	AE	0.14L	J	AE	0.13L	J	AE
Methyl tert-butyl ether	0.50U			0.50U			0.50U			0.50U		
1,1-Dichloroethane	4.9			5.4			0.39L	J	A	0.34L	J	A
cis-1,2-Dichloroethene	13	J	E	14	J	E	7.2	J	E	6.3	J	E
2-Butanone	5.0U			5.0U			5.0U			5.0U		
Bromochloromethane	0.50U			0.50U			0.50U			0.50U		
Chloroform	2.7			3.0			9.2			8.2		
1,1,1-Trichloroethane	0.79			0.88			0.50U			0.50U		
Cyclohexane	0.21L	J	A	0.98	J	A	1.7	F	0.40L	J	AF	1.9
Carbon tetrachloride	0.13L	J	A	0.13L	J	A	0.23L	J	A	0.22L	J	A
Benzene	0.50U			0.50U			0.15L	J	A	0.11L	J	A
1,2-Dichloroethane	0.84			0.88			0.66	FH		0.63	FHI	1.6
Trichloroethene	120	H		120	H		250	0.50U		140	FHI	150
Methylcyclohexane	0.50U			0.50U						0.50U	H	1.7

## ANALYTICAL RESULTS

Page 6 of 10

Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

**QUALIFIED DATA**  
**Concentration in ug/L**
**Analysis Type :**Trace Level Water Samples  
for Trace Volatiles

Station Location :	14			15			16			17			18			19		
Sample ID :	Y4Q53	D1		Y4Q54			Y4Q55	D2		Y4Q56	D2		Y4Q57		Y4Q58			
Collection Date :	4/7/2009			4/7/2009			4/7/2009			4/7/2009			4/7/2009		4/7/2009			
Dilution Factor :	1.0			1.0			1.0			1.0			1.0		1.0			
Trace Volatiles	Result	Val	Com	Result	Val	Com												
1,2-Dichloropropane	0.50U			0.50U														
Bromodichloromethane	0.50U			0.50U														
cis-1,3-Dichloropropene	0.50U			0.50U														
4-Methyl-2-pentanone	5.0U			5.0U														
Toluene	0.50U			0.50U														
trans-1,3-Dichloropropene	0.50U			0.50U														
1,1,2-Trichloroethane	0.50U			0.50U														
Tetrachloroethylene	130		H	97			H	110		H	63		FHI	140		H	5.2	
2-Hexanone	5.0U			5.0U														
Dibromochloromethane	0.50U			0.50U														
1,2-Dibromoethane	0.50U			0.50U														
Chlorobenzene	0.50U			0.50U														
Ethylbenzene	0.50U			0.50U														
o-Xylene	0.50U			0.50U														
m,p-Xylene	0.50U			0.50U														
Styrene	0.50U			0.50U														
Bromoform	0.50U			0.50U														
Isopropylbenzene	0.50U			0.50U														
1,1,2,2-Tetrachloroethane	0.50U			0.50U														
1,3-Dichlorobenzene	0.50U			0.50U														
1,4-Dichlorobenzene	0.50U			0.50U														
1,2-Dichlorobenzene	0.50U			0.50U														
1,2-Dibromo-3-chloropropane	0.50U			0.50U														
1,2,4-Trichlorobenzene	0.50U			0.50U														
1,2,3-Trichlorobenzene	0.50U			0.50U														

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit

N/A - Not Applicable

NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank,

TB - Trip Blank, BG - Background Sample

Case No : 38275

SDG No. : Y4Q41

## ANALYTICAL RESULTS

Table 1A

Site : OMEGA CHEM QI I2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

QUALIFIED DATA

### Concentration in µg/l

#### **Analysis Type :**

## Trace Level Water Samples for Trace Volatiles

## ANALYTICAL RESULTS

Page 8 of 10

Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

**QUALIFIED DATA**  
**Concentration in ug/L**
**Analysis Type :**Trace Level Water Samples  
for Trace Volatiles

Station Location :	20			21			Method Blank	VBLKBG	Method Blank	VBLKDP	Method Blank	VBLKDU	Method Blank	VBLKDW	
Sample ID :	Y4Q59			Y4Q60			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Collection Date :	4/7/2009			4/7/2009											
Dilution Factor :	1.0			1.0											
Trace Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
1,2-Dichloropropane	0.50U			0.50U			0.50U			0.50U			0.50U		
Bromodichloromethane	0.50U			0.50U			0.50U			0.50U			0.50U		
cis-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50U		
4-Methyl-2-pentanone	5.0U			5.0U			5.0U			5.0U			5.0U		
Toluene	0.50U			0.50U			0.50U			0.50U			0.50U		
trans-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,1,2-Trichloroethane	0.40L	J	A	0.50U			0.50U			0.50U			0.50U		
Tetrachloroethene	290		H	69			H	0.50U		0.50U			0.50U		
2-Hexanone	5.0U			5.0U			5.0U			5.0U			5.0U		
Dibromochloromethane	0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dibromoethane	0.50U			0.50U			0.50U			0.50U			0.50U		
Chlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
Ethylbenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
o-Xylene	0.50U			0.50U			0.50U			0.50U			0.50U		
m,p-Xylene	0.50U			0.50U			0.50U			0.50U			0.50U		
Styrene	0.50U			0.50U			0.50U			0.50U			0.50U		
Bromoform	0.50U			0.50U			0.50U			0.50U			0.50U		
Isopropylbenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,1,2,2-Tetrachloroethane	0.50U			0.50U			0.50U			0.50U			0.50U		
1,3-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,4-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,2-Dibromo-3-chloropropane	0.50U			0.50U			0.50U	J	D	0.50U			0.50U		
1,2,4-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		
1,2,3-Trichlorobenzene	0.50U			0.50U			0.50U			0.50U			0.50U		

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit

N/A - Not Applicable

NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank,

TB - Trip Blank, BG - Background Sample

Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

#### **ANALYTICAL RESULTS**

Table 1A

**QUALIFIED DATA**

### **Concentration in ug/L**

**Analysis Type :**

## Trace Level Water Samples for Trace Volatiles

## ANALYTICAL RESULTS

Page 10 of 10

Case No. : 38275

SDG No. : Y4Q41

Site : OMEGA CHEM OU2

Lab : COMPUCHEM

Reviewer : April Martinez ESAT/LDC

Date : 06/02/09

Table 1A

## QUALIFIED DATA

Concentration in ug/L

Analysis Type :

Trace Level Water Samples  
for Trace Volatiles

Station Location :	Method Blank VBLKEA			Method Blank VBLKJL			Storage Blank VHBLKYA			CRQL								
Collection Date :	1.0			1.0			1.0											
Dilution Factor :	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Trace Volatiles																		
1,2-Dichloropropane	0.50U			0.50U			0.50U			0.50								
Bromodichloromethane	0.50U			0.50U			0.50U			0.50								
cis-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50								
4-Methyl-2-pentanone	5.0U			5.0U			5.0U			5.0								
Toluene	0.50U			0.50U			0.50U			0.50								
trans-1,3-Dichloropropene	0.50U			0.50U			0.50U			0.50								
1,1,2-Trichloroethane	0.50U			0.50U			0.50U			0.50								
Tetrachloroethylene	0.50U			0.50U			0.50U			0.50								
2-Hexanone	5.0U			5.0U			5.0U			5.0								
Dibromochloromethane	0.50U			0.50U			0.50U			0.50								
1,2-Dibromoethane	0.50U			0.50U			0.50U			0.50								
Chlorobenzene	0.50U			0.50U			0.50U			0.50								
Ethylbenzene	0.50U			0.50U			0.50U			0.50								
o-Xylene	0.50U			0.50U			0.50U			0.50								
m,p-Xylene	0.50U			0.50U			0.50U			0.50								
Styrene	0.50U			0.50U			0.50U			0.50								
Bromoform	0.50U			0.50U			0.50U			0.50								
Isopropylbenzene	0.50U			0.50U			0.50U			0.50								
1,1,2,2-Tetrachloroethane	0.50U			0.50U			0.50U			0.50								
1,3-Dichlorobenzene	0.50U			0.50U			0.50U			0.50								
1,4-Dichlorobenzene	0.50U			0.50U			0.50U			0.50								
1,2-Dichlorobenzene	0.50U			0.50U			0.50U			0.50								
1,2-Dibromo-3-chloropropane	0.50U			0.50U			0.50U			0.50								
1,2,4-Trichlorobenzene	0.50U			0.50U			0.50U			0.50								
1,2,3-Trichlorobenzene	0.50U			0.50U			0.50U			0.50								

Val - Validity. Refer to Data Qualifiers in Table 1B.

Com - Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL - Contract Required Quantitation Limit

N/A - Not Applicable

NA - Not Analyzed

D1, D2, etc. - Field Duplicate Pairs

FB - Field Blank, EB - Equipment Blank,

TB - Trip Blank, BG - Background Sample

**TABLE 1B**  
**DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW**

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

- U** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- L** Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- NJ** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ** The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- R** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Table 2  
Calibration Summary

Case No.: 38275  
 SDG No.: Y4Q41  
 Site: Omega Chem OU2  
 Laboratory: CompuChem  
 Reviewer: April Martinez, ESAT/LDC  
 Date: June 2, 2009

#### RELATIVE RESPONSE FACTORS (RRF)

	<u>RRF</u>	<u>RRF</u>	<u>RRF</u>
Analysis date:	4/14/09	4/17/09	4/17/09
Analysis time:	15:34-	14:52	20:09
GC/MS I.D.:	5972hp73	5972hp73	5972hp73
<u>Analyte</u>	<u>Init.</u>	<u>CCV</u>	<u>CCV</u>
Acetone	0.045	0.037	0.045
	<u>RRF</u>	<u>RRF</u>	<u>RRF</u>
Analysis date:	4/16/09	4/16/09	4/17/09
Analysis time:	04:45-	14:25	00:16
GC/MS I.D.:	5973hp90	5973hp90	5973hp90
<u>Analyte</u>	<u>Init.</u>	<u>CCV</u>	<u>CCV</u>
Acetone	0.024	0.030	0.023
2-Butanone-d5	-----	0.045	-----
2-Hexanone-d5	0.040	0.041	0.049
	<u>RRF</u>	<u>RRF</u>	<u>RRF</u>
Analysis date:	4/17/09	4/17/09	4/19/09
Analysis time:	14:27-	22:10	14:10
GC/MS I.D.:	5973hp90	5973hp90	5973hp90
<u>Analyte</u>	<u>Init.</u>	<u>CCV</u>	<u>CCV</u>
Acetone	0.041	0.023	0.035
2-Butanone-d5	0.045	0.046	0.045
2-Hexanone-d5	0.034	0.042	0.036

#### ASSOCIATED SAMPLES AND METHOD BLANKS

Initial, 4/14/09: Samples Y4Q59DL and Y4Q60DL and method blank VBLKBG

CCV, 4/17/09 14:52 and 20:09:

Y4Q59DL and Y4Q60DL and VBLKBG

Initial, 4/16/09: Y4Q41 through Y4Q60, Y4Q41DL, Y4Q46DL through Y4Q57DL,  
 VBLKDP, VBLKJL and VBLKDU

CCV, 4/16/09 14:25: Y4Q41 through Y4Q45, VBLKDP, and VBLKDP  
CCV, 4/17/09 00:16: Y4Q46 through Y4Q57, Y4Q41DL, Y4Q46DL through Y4Q57DL,  
VBLKJL and VBLKDU  
CCV, 4/17/09 10:13: Y4Q58 through Y4Q60, Y4Q41DL, Y4Q46DL through Y4Q57DL,  
and VBLKDU

Initial, 4/17/09: Y4Q59MS, Y4Q59MSD, VBLKDW, VBLKEA and VHBLKYA  
CCV, 4/17/09 22:10: Y4Q59MS, Y4Q59MSD and VBLKDW  
CCV, 4/19/09 14:10 and 16:12:  
VBLKEA and VHBLKYA

Table 9. Volatile Deuterated Monitoring Compounds (DMCs) and the Associated Target Compounds

Chloroethane-d <sub>2</sub> (DMC)	1,2-Dichloropropane-d <sub>6</sub> (DMC)	1,2-Dichlorobenzene-d <sub>4</sub> (DMC)
Dichlorodifluoromethane	Cyclohexane	Chlorobenzene
Chloromethane	Methylcyclohexane	1,3-Dichlorobenzene
Bromomethane	1,2-Dichloropropane	1,4-Dichlorobenzene
Chloroethane	Bromodichloromethane	1,2-Dichlorobenzene
Carbon disulfide		1,2,4-Trichlorobenzene
		1,2,3-Trichlorobenzene
trans-1,3-Dichloropropene-d <sub>4</sub> (DMC)	Chloroform-d (DMC)	-2-Hexanone-d <sub>4</sub> (DMC)
cis-1,3-Dichloropropene	1,1-Dichloroethane	4-Methyl-2-pentanone
trans-1,3-Dichloropropene	Bromoform	2-Hexanone
1,1,2-Trichloroethane	Chloroform	
	Dibromoform	
	Bromoform	
2-Butanone-d <sub>4</sub> (DMC)	1,1-Dichloroethene-d <sub>2</sub> (DMC)	1,1,2,2-Tetrachloroethane-d <sub>2</sub> (DMC)
Acetone	trans-1,2-Dichloroethene	1,1,2,2-Tetrachloroethane
2-Butanone	1,1-Dichloroethene	1,2-Dibromo-3-chloropropane
	cis-1,2-Dichloroethene	
Vinyl chloride-d <sub>3</sub> (DMC)	Benzene-d <sub>6</sub> (DMC)	Toluene-d <sub>4</sub> (DMC)
Vinyl chloride	Benzene	Trichloroethene
		Toluene
		Tetrachloroethene
		Ethylbenzene
		o-Xylene
		m,p-Xylene
		Styrene
		Isopropylbenzene
1,2-Dichloroethane-d <sub>4</sub> (DMC)		
Trichlorofluoromethane		
1,1,2-Trichloro-1,2,2-trifluoroethane		
Methyl acetate		
Methylene chloride		
Methyl-tert-butyl ether		
1,1,1-Trichloroethane		
Carbon tetrachloride		
1,2-Dibromoethane		
1,2-Dichloroethane		

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q41

Lab Name:	COMPUCHEM	Contract:	EPW05028			
Lab Code:	LIBERTY Case No.:	38275	Mod. Ref No.:	SDG No.:	Y4Q41	
Matrix:	(SOIL/SED/WATER)	WATER	Lab Sample ID:	0904046-01		
Sample wt/vol:	25.0	(g/mL)	mL	Lab File ID:	0904046-0190.d	
Level:	(TRACE or LOW/MED)	TRACE	Date Received:	04/08/2009		
% Moisture:	not dec.		Date Analyzed:	04/16/2009		
GC Column:	SPB-624	ID:	0.32	(mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	Soil Aliquot Volume:	(uL)		
CONCENTRATION UNITS: (ug/L or ug/kg)		ug/L	Purge Volume:	25.0	(mL)	

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	UNKNOWN	4.40	4.8	J
02				
03				
04				
05				
06				
07				
08				
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27	/			
28				
29				
30				
E966796 <sup>1</sup>	Total Alkanes	N/A		

<sup>1</sup>EPA-designated Registry Number.

1J - FORM I VOA-TIC  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q42

Lab Name:	COMPUCHEM	Contract:	EPW05028		
Lab Code:	LIBRTY Case No.:	38275	Mod. Ref No.:	SDG No.:	Y4Q41
Matrix:	(SOIL/SED/WATER)	WATER	Lab Sample ID:	0904046-02	
Sample wt/vol:	25.0	(g/mL)	mL	Lab File ID:	0904046-0290.d
Level:	(TRACE or LOW/MED)	TRACE	Date Received:	04/08/2009	
% Moisture:	not dec.		Date Analyzed:	04/16/2009	
GC Column:	SPB-624	ID:	0.32 (mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	Soil Aliquot Volume:	(uL)	
CONCENTRATION UNITS: (ug/L or ug/kg)	ug/L	Purge Volume:	25.0	(mL)	

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 75-45-6	Methane, chlorodifluoro- \$\$	4.07	3.7	JN
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
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25				
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27				
28				
29				
30				
E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q46

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-06  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-0690.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 79-38-9	Ethene, chlorotrifluoro-	3.92	1.5	JN
02	UNKNOWN C <sub>5</sub> H <sub>12</sub> Hydrocarbon	5.92	0.51	JN
03 75-43-4	Methane, dichlorofluoro- \$S	6.20	1.8	JN
04 354-23-4	UNKNOWN Dichlorotrifluoroethane	6.80	3.6	JN
05	UNKNOWN C <sub>6</sub> H <sub>14</sub> Hydrocarbon	7.78	1.4	JN
06	UNKNOWN ALKANE (C <sub>7</sub> H <sub>16</sub> )	10.20	2.8	JN
07				
08	SL, 6/109			
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29				
30				
E966796	Total Alkanes	N/A		

\*EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q47

Lab Name:	COMPUCHEM	Contract:	EPW05028		
Lab Code:	LIBERTY Case No.:	38275	Mod. Ref No.:	SDG No.:	Y4Q41
Matrix:	(SOIL/SED/WATER)	WATER	Lab Sample ID:	0904046-07	
Sample wt/vol:	25.0	(g/mL)	mL	Lab File ID:	0904046-0790.d
Level:	(TRACE or LOW/MED)	TRACE	Date Received:	04/08/2009	
% Moisture:	not dec.		Date Analyzed:	04/16/2009	
GC Column:	SPB-624	ID:	0.32 (mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	Soil Aliquot Volume:	(uL)	
CONCENTRATION UNITS: (ug/L or ug/kg) ug/L			Purge Volume:	25.0	(mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 79-38-9	Ethene, chlorotrifluoro-	3.92	1.7	JN
02 7446-09-5	Sulfur dioxide \$\$ Fermenicid	4.36	2.2	JN
03	UNKNOWN C <sub>5</sub> H <sub>10</sub> Hydrocarbon	5.92	0.71	JN
04 75-43-4	Methane, dichlorofluoro- \$\$	6.19	2.8	JN
05 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	7.2	JN
06	UNKNOWN ALKANE (C <sub>6</sub> H <sub>14</sub> )	7.78	1.7	JN
07	UNKNOWN ALKANE	8.15	5.5	J
08	UNKNOWN (C <sub>7</sub> H <sub>14</sub> )	10.19	3.0	JN
09				
10	SL, 4/109,			
11				
12				
13				
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30				
E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q48

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-08  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-0890.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 78-78-4	Butane, 2-methyl- ( <u>C<sub>5</sub>H<sub>12</sub></u> )	5.93	7.2	JN
02 75-43-4	Methane, dichlorofluoro-	6.20	2.3	JN
03	UNKNOWN ALKANE ( <u>C<sub>5</sub>H<sub>12</sub></u> )	6.41	0.96	JN
04 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	7.4	JN
05	UNKNOWN ALKANE ( <u>C<sub>6</sub>H<sub>14</sub></u> )	7.78	2.9	JN
06 598-61-8	Cyclobutane, methyl- \$S Meth ( <u>C<sub>5</sub>H<sub>10</sub></u> )	7.93	9.6	JN
07	UNKNOWN ALKANE ( <u>C<sub>7</sub>H<sub>14</sub></u> )	10.19	3.0	JN
08				
09	<u>SL, 6/1/09.</u>			
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E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q49

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-09  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-0990.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 74-98-6	Propane ( $C_3H_8$ )	3.92	2.9	JN
02 78-78-4	Butane, 2-methyl- ( $C_5H_{12}$ )	5.92	7.7	JN
03 75-43-4	Methane, dichlorofluoro- \$S	6.20	2.3	JN
04	UNKNOWN ALKANE ( $C_5H_{12}$ )	6.41	0.92	JN
05 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	5.5	JN
06	UNKNOWN $C_6H_{14}$ Hydrocarbon	7.78	3.4	JN
07 287-92-3	Cyclopentane ( $C_5H_{10}$ )	7.92	9.7	JN
08	UNKNOWN $C_7H_{14}$ Hydrocarbon	10.18	3.4	JN
09				
10	SL, 8/1/09,			
11				
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E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q50

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-10  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-1090.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	0.82	JN
02 306-83-2	UNKNOWN: dichlorotrifluoroethane	6.90	0.91	JN
03				
04	SL, 4/109.			
05				
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E966796 <sup>1</sup>	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q51

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-11  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-1190.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	UNKNOWN dichloronitrifluoroethane	6.80	0.85	JN
02 306-83-2	UNKNOWN ↓	6.91	0.86	JN
03				
04	SL, 6/10g			
05				
06				
07				
08				
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29				
30				
E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q52

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-12  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-1290.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	0.60	JN
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
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30				
E966796 <sup>1</sup>	Total Alkanes	N/A		

<sup>1</sup>EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q57

Lab Name: COMPUCHEM Contract: EPW05028  
 Lab Code: LIBRTY Case No.: 38275 Mod. Ref No.:  SDG No.: Y4Q41  
 Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0904046-17  
 Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 0904046-1790.d  
 Level: (TRACE or LOW/MED) TRACE Date Received: 04/08/2009  
 % Moisture: not dec. Date Analyzed: 04/16/2009  
 GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0  
 Soil Extract Volume:  (uL) Soil Aliquot Volume:  (uL)  
 CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.80	1.3	JN
02 306-83-2	Ethane, 2,2-dichloro-1,1,1-t	6.91	0.95	JN
03				
04				
05				
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09				
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12				
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24				
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27				
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29				
30				
E966796 <sup>1</sup>	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q59

Lab Name:	COMPUCHEM		Contract:	EPW05028
Lab Code:	LIBRTY Case No.:	38275	Mod. Ref No.:	SDG No.: Y4Q41
Matrix:	(SOIL/SED/WATER)	WATER	Lab Sample ID:	0904046-19
Sample wt/vol:	25.0	(g/mL)	Lab File ID:	0904046-1990.d
Level:	(TRACE or LOW/MED)	TRACE	Date Received:	04/08/2009
% Moisture:	not dec.		Date Analyzed:	04/17/2009
GC Column:	SPB-624	ID: 0.32 (mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	Soil Aliquot Volume:	(uL)
CONCENTRATION UNITS: (ug/L or ug/kg)		ug/L	Purge Volume:	25.0 (mL)

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	UNKNOWN Dichlorotrifluoromethane	6.83	2.2	JN
02 306-83-2	Ethane, 2,2-dichloro-1,1,1-t	6.94	1.3	JN
03 76-12-0	Ethane, 1,1,2,2-tetrachloro-	10.62	0.68	JN
04				
05	52 6/10/09			
06				
07				
08				
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29				
30				
E966796	Total Alkanes	N/A		

EPA-designated Registry Number.

1J - FORM I VOA-TIC  
 VOLATILE ORGANICS ANALYSIS DATA SHEET  
 TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Y4Q60

Lab Name:	COMPUCHEM	Contract:	EPW05028			
Lab Code:	LIBRTY Case No.:	38275	Mod. Ref No.:	SDG No.:	Y4Q41	
Matrix:	(SOIL/SED/WATER)	WATER	Lab Sample ID:	0904046-20		
Sample wt/vol:	25.0	(g/mL)	mL	Lab File ID:	0904046-2090.d	
Level:	(TRACE or LOW/MED)	TRACE	Date Received:	04/08/2009		
% Moisture:	not dec.		Date Analyzed:	04/17/2009		
GC Column:	SPB-624	ID:	0.32	(mm)	Dilution Factor:	1.0
Soil Extract Volume:		(uL)	Soil Aliquot Volume:	(uL)		
CONCENTRATION UNITS:	(ug/L or ug/kg)	ug/L	Purge Volume:	25.0	(mL)	

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	6.81	0.90	JN
02 306-83-2	Ethane, 2,2-dichloro-1,1,1-t	6.91	0.73	JN
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E966796*	Total Alkanes	N/A		

\*EPA-designated Registry Number.